

Amendments to the Specification:

1. Page 1, before line 3 but after the title, please insert the following:

CROSS-REFERENCE TO RELATED APPLICATIONS

The present application is a U.S. National Stage of International Application No. PCT/EP2005/002023, filed February 25, 2005, which claims priority of German Patent Application No. 10 2004 009 287.7, filed February 26, 2004.

BACKGROUND OF THE INVENTION

1. Field of the Invention

2. Page 1, before line 6, please insert the following:

2. Discussion of Background Information

3. Page 2, before line 36, please insert the following:

SUMMARY OF THE INVENTION

The present invention provides a process for the production of an amphiphilic nanoscale particle which comprises a hydrolyzable lipophilic radical on the surface thereof. The process comprises (a) subjecting at least one hydrolysable compound which comprises at least one hydrolysable lipophilic group to a hydrolysis and condensation reaction with a substoichiometric amount of water and (b) the subsequent removal of liquid to obtain a plurality of the resultant

amphiphilic nanoscale particle in the form of a powder.

In one aspect of the process, the at least one hydrolysable compound may comprise (i) a hydrolysable metal or semimetal compound which comprises at least one hydrolysable lipophilic group and may comprise one or more non-hydrolysable groups and/or (ii) a condensation product derived from the at least one hydrolysable compound.

In another aspect of the process, the at least one hydrolysable compound may comprises an alkoxide.

In yet another aspect, the at least one hydrolysable compound may comprise (i) a compound of at least one of Mg, Si, Ge, Al, B, Zn, Cd, Ti, Zr, Ce, Sn, In, La, Fe, Cu, Ta, Nb, V, Mo or W and/or (ii) a condensation product derived therefrom.

In a still further aspect of the process, the at least one hydrolysable lipophilic group may comprise at least four carbon atoms, e.g., at least five carbon atoms.

In another aspect, the process may further comprise the reaction of the amphiphilic nanoscale particle with a surface modifier to provide the particle with one or more functional groups on the surface thereof. This reaction may be carried out in a solvent. The surface modifier may, for example, comprise one or more of a saturated or unsaturated carboxylic acid, a β -dicarbonyl compound, an

amine, a phosphonic acid, a sulfonic acid and a silane.

In another aspect, in addition to at least one functional group for attachment or complexation to the surface of the particle, the surface modifier may comprise at least one further functional group.

In yet another aspect, the surface modifier may comprise a complexing agent.

The present invention also provides an amphiphilic nanoscale particle. This particle comprises at least one hydrolysable lipophilic radical on the surface thereof.

In one aspect, the at least one hydrolysable radical may comprise a lipophilic moiety which has at least four carbon atoms, e.g., at least five carbon atoms.

In another aspect of the particle, the at least one hydrolysable radical may comprise at least one of an alkoxy, alkenyloxy, alkynyloxy, aryloxy, aralkyloxy, alkaryloxy, ether, acyloxy, alkyl or acyl radical. For example, the at least one hydrolysable radical may comprise a C₄-C₂₀-alkoxy radical such as, e.g., a pentoxy radical and/or a hexoxy radical. Further, the at least one hydrolysable radical may be fluorinated.

In yet another aspect of the particle, the at least one hydrolysable radical may be derived from a hydrolysable precursor of the particle.

In a still further aspect, the particle may comprise one or more oxides, optionally hydrated, of one or more metals or semimetals. In another aspect, the particle may comprise at least one compound of one or more elements selected from Mg, Si, Ge, Al, B, Zn, Cd, Ti, Zr, Ce, Sn, In, La, Fe, Cu, Ta, Nb, V, Mo and W.

In another aspect, the particle may be surface-modified with at least one function group. The at least one function group may comprise at least one functional group. Further, the at least one functional group may be capable of entering into a crosslinking reaction with a functional group of the same type or a different type. For example, the at least one functional group may comprise at least one of a hydroxy, epoxy, thiol, amino, carboxyl, carboxylic anhydride, carbonyl, isocyanate, sulfonic acid, phosphonic acid and quaternary amine group, a C-C double bond and a fluorinated hydrocarbon group.

In yet another aspect, the particle may be doped.

In another aspect, the particle may comprise a coating of a material which is different from the material of the particle to form a core/shell system.

The present invention also provides a powder which comprises a plurality of the

particle of the present invention as set forth above, including the various aspects thereof.

The present invention further provides a composition which comprises the particle of the present invention as set forth above, including the various aspects thereof, and a matrix forming material. For example, the particle may be surface-modified with a functional group which is capable of entering into a crosslinking reaction with a functional group of the matrix forming material.

In one aspect, the composition may be a coating composition, an adhesive, a resin composition, a sealant, a paste, a molding composition and/or a slip.

DETAILED DESCRIPTION OF THE INVENTION